

AN OPTICAL FIBRE EMULATOR

Abstract

An optical fibre emulator. The emulator receives a digitally-encoded optical signal;
5 demodulates the optical signal to produce serial electrical pulses representative of the digital
signal; converts the serial pulses to parallel pulses; propagates the parallel pulses through a shift
register whose propagation time is less than or equal to the time of a length of fibre to be
emulated. The emulator then converts the parallel pulses at the output of the shift register to serial
pulses; modulates an optical carrier with the serial pulses from the shift register; and attenuates
10 the modulated optical signal an amount corresponding to the length of the fibre being emulated to
produce an output optical signal whose propagation time is substantially equal to that of a section
of optical fibre to be emulated. The shift register may be tapped at any point to obtain an output
delayed by a desired amount corresponding to a selected section of optical fibre.